



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,104	01/18/2002	Chul-Hwan Choi	SEC.890	6556
20987	7590	05/19/2005	EXAMINER	
VOLENTINE FRANCOS, & WHITT PLLC ONE FREEDOM SQUARE 11951 FREEDOM DRIVE SUITE 1260 RESTON, VA 20190			BRAHAN, THOMAS J	
		ART UNIT		PAPER NUMBER
				3652

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/050,104	CHOI ET AL. <i>V</i>
	Examiner Thomas J. Braham	Art Unit 3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 February 2005.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 13 and 14 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 13 and 14 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

1. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

2. Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Muka in view of Yanagita et al. Figures 5A and 5B of Muka show a semiconductor device manufacturing equipment comprising:

a transfer chamber (104);

a plurality of load lock chambers (108) connected to the transfer chamber independently of each other at a first side of the transfer chamber, some of the load lock chambers being disposed at a plurality of levels, respectively, at the first side of the transfer chamber, a number of the load lock chambers being disposed side-by-side and spaced relative to each other in a first axial direction on at least one of the levels, the first axial direction, and each of the load lock chambers having first and second doors that separate the interior of the load lock chamber from the environment out-side the equipment and the interior of the transfer chamber, respectively;

a plurality of process chambers (102) in which wafers are processed, the process chambers being connected to the transfer chamber independently of each other at sides of the transfer chamber, wherein some of the process chambers are disposed at the plurality of levels, respectively, at the second side of the transfer chamber, and a number of the process chambers are disposed side-by-side and spaced relative to each other in the first axial direction on the at least one of the levels; and

a robot disposed in the transfer chamber, the robot comprising a robot arm, and a wafer support member disposed at a terminal end of the robot arm so as to move with the robot arm, the robot arm being supported so as to be independently linearly translatable in a vertical direction, and rotatable about a vertical axis, and the wafer support member being supported by the robot arm so as to be extendable and retractable independently of the robot arm at the terminal end of the robot arm, wherein the robot has a working envelope that allows the wafer support member to transfer wafers between any of the load lock chambers and the respective process chamber disposed across therefrom.

The embodiment of Figures 5A and 5B of Muka varies from the claims by having the load lock chambers and the processing chambers arranged on the transfer chamber in a polar manner about the transfer robot instead

Art Unit: 3652

of being located on opposite sides of a rectangular transfer chamber in a Cartesian coordinate manner with a transfer robot that translates axially with respect to the chambers. However these two arrangements are art recognized equivalents. Yanagita et al shows a similar semiconductor device manufacturing equipment with a first embodiment having a transfer chamber with load lock chambers and process chambers arranged in a polar manner about a transfer robot, see figure 2, and a second embodiment having a rectangular transfer chamber with load lock chambers and process chambers arranged in a Cartesian manner about a transfer robot which also translates back and forth axially in front of the chambers, see figure 15. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the a semiconductor device manufacturing equipment of Muka by using a rectangular transfer chamber with an axially translating robot and load lock and process chambers arranged in a Cartesian manner on opposite opposing sides of the transfer chamber, instead of in a polar coordinate arrangement, as these two arrangements are art recognized equivalents, as taught by Yanagita et al.

3. Applicant traverses the rejection in the request for consideration filed February 25, 2005, by stating that "the Muka reference must be considered in its entirety, including portions that would lead away from the claimed invention". However applicant does not cite any portions of the Muka reference that lead away from the above combination. Applicant appears to be arguing that as Muka already shows an embodiment which is a Cartesian type robot and processing apparatus which would be an equivalent arrangement to its polar arranged processing apparatus. However the showing of one arrangement that is an equivalent to the arrangement of figures 5A and 5B of Muka is not a teaching that other equivalent arrangements do not exist. The Yanagita et al reference teaches the a polar arranged processing system, shown in figure 2, and a rectangular arranged processing system with a axially sliding robot, shown in figure 14 are art recognized equivalents, and as such the substitution of one for the other would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant. The fact that the primary reference of Muka shows other equivalent arrangements does not detract from the teachings of Yanagita et al. Applicant also argues that the combination does not have the specific claimed robot as neither Muka or Yanagita et al have a support member that is extendable and retractable independently of the robot arm at the terminal end of the robot arm. However the robot of Muka, as modified in the rejection, has all of the recited movements for the wafer support member and a robot arm. The wafer support member (holder 229 and including the structure that supports it from that which is considered as the robot arm) is disposed at a terminal end of the robot arm (arm 222, arm 224 or arm 226) so as to move with the arm, the robot arm being supported so as to be independently linearly translatable in the first axial direction (as the modification has it mounted on a horizontal driving shaft similar to 6160 of figure 14 of Yanagita et al), linearly translatable in a vertical direction (as shown by the arrow in figure 7 of Muka) and rotatable about a vertical axis (see column 8, lines 8-10 of Muka), and the wafer support member (holder 229) is supported by the robot arm (arm 222, arm 224 or arm 226) so as to be extendable and retractable independently of the robot arm (by rotations at axis A3 or A4; note that linear motion is not specified for the extension and retraction) at the terminal

Art Unit: 3652

end of the robot arm (222, 224 or 226). The modified robot has a working envelope that allows the wafer support member to transfer wafers between any of the load lock chambers and the respective processing chambers. THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. An inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Brahan whose telephone number is (571) 272-6921. The examiner's supervisor, Ms. Eileen Lillis, can be reached at (571) 272-6928. The fax number for all patent applications is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions regarding access to the Private PAIR system, should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Thomas J. Brahan  
Primary Examiner  
Art Unit 3652